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NUCLEAR ENERGY INSTITUTE

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June 15, 2015

Ms. Cindy K. Bladey
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Draft NUREG/CR-7197, "Heat Release Rates of Electrical Enclosure of Fires," [Docket ID NRC-2015-0060]

Project Number: 689

Dear Ms. Bladey:

On behalf of the nuclear energy industry, the Nuclear Energy Institute (NEI)[1] appreciates the opportunity to provide comments on the Draft NUREG/CR-7197, "Heat Release Rates of Electrical Enclosure of Fires," [Docket ID NRC-2015-0060].

This report, which documents the results of full-scale experiments of electrical enclosure fires, provides data that supports development of updated information on heat release rates to be used in Fire Probabilistic Risk Assessment (PRA). This represents a substantial improvement from the existing data as presented in NUREG/CR-6850, "Fire PRA Methodology for Nuclear Power Facilities." These improvements will, in line with the NRC's PRA Policy Statement of 1995, enable licensees to achieve more realistic Fire PRAs in support of numerous risk-informed regulatory activities.

The industry has noted several areas in which future experimental efforts could be more precisely conducted and analyzed to further improve the realism of electrical cabinet heat release rates used in Fire PRAs, and these are discussed in the attached detailed comments. However, given the vast improvements offered by the current draft of the report, the industry does not believe it is necessary to delay finalization of this edition of the NUREG to address these comments.

[1] The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

If you have any questions or require additional information, please contact me (202-739-8101; vka@nei.org).

Sincerely,

Victoria K. Anderson

Attachment

c: Mr. Mark Henry Salley, RES/DRA/FRB, NRC
Mr. David Stroup, RES/DRA/FRB, NRC

Detailed Comments on NUREG/CR-7197, "Heat Release Rates of Electrical Enclosure Fires"

- Numerous tests in the report are described as "cabinet doors closed" and yet, the doors were opened mid-test and the contents agitated with a crowbar in order to increase the intensity of the fire. This biases the tests towards producing large fires, and the resulting data is skewed towards excessive Heat Release Rates (HRRs).
- In several cases, cables are reported as being Institute of Electrical and Electronics Engineers 383 (IEEE-383) rated, however, other data suggests that the cables are not IEEE-383. This would significantly change the HRR profiles attributable to qualified and unqualified cables.
- The discussion on fire spread to adjacent cabinets in Section 5.2.2 should be expanded. NUREG/CR-6850, "Fire PRA Methodology for Nuclear Power Facilities," calls for the assumption of horizontal fire spread unless cabinets are perfectly sealed with double-walls and an air-gap between them. It appears that the tests discussed in Section 5.2.2 refute this position, however, detail to support this is not documented in the report.
- Many electrical cabinets will not have high voltage/high current cables in them. However, all the ignitions discussed in Section 4.2.1, with the exception of one, use fire sources that presume some significant energy discharge causing a flaming fire vs. the more likely overheat condition. This suggests that the heat release distributions are conservative for any cabinet where high voltage/high current is not present. Even in cabinets with high voltage/high current, the use of large flaming sources means that all the small, inconsequential fires that might result from overheat are omitted from the fire size distributions, skewing them to large average sizes.